

Table 34
Cost Estimate Summary for the Selected Remedy

Component	Unit	Unit Cost	# of Units	Cost
CAPITAL COSTS				
A. Pre-Construction Activities				
Design	Percentage	6%	482,443,700	\$28,950,000
Regulatory Requirements, Legal, and Community Outreach	Percentage	2%	482,443,700	\$9,650,000
Contractor Work Plans and Submittals	LS	\$355,000	1	\$355,000
Pre-Construction Support Facility	Month	\$10,000	12	\$120,000
Pre-Construction Oversight	Month	\$48,000	12	\$576,000
General and Survey and Coring Vessels Mobilization	LS	\$28,900	1	\$28,900
Pre-Design Investigation - Chemical, Waste Characterization, Geological Sample Collection - RM0 to RM1.7 Channel	Core	\$1,250	609	\$761,250
Pre-Design Investigation - Chemical, Waste Characterization, Geological Sample Collection - RM1.7 to RM8.3 and RM0 - RM1.7 Shoals	Core	\$250	4,869	\$1,217,250
Pre-Design Investigation - Geotechnical Sample Collection	Boring	\$9,750	77	\$750,750
Pre-Design Investigation - Chemical Analysis	Sample	\$1,560	19,479	\$30,387,240
Pre-Design Investigation - Waste Characterization Analysis	Sample	\$1,280	7,755	\$9,926,400
Pre-Design Investigation - Geological Analysis	Sample	\$280	7,106	\$1,989,680
Pre-Design Investigation - Geotechnical Analysis	Sample	\$1,240	231	\$286,440
Biological Monitoring Baseline Studies	LS	\$2,800,000	1	\$2,800,000
Pore Water Evaluation	Sample	\$1,040	548	\$569,920
Sub-bottom Geophysics and Bathymetric Survey	Day	\$8,200	9	\$73,800
Video Survey for Debris Identification	Day	\$8,200	9	\$73,800
Habitat Survey (in river)	LS	\$100,000	1	\$100,000
Cultural Survey (in river)	LS	\$540,000	1	\$540,000
Fish Spawning Study	LS	\$50,000	1	\$50,000
Borrow Site Pre-Screening	Sample	\$3,000	300	\$900,000
Borrow Material Characterization	Sample	\$2,620	354	\$927,480
Cap Erosion Modeling for Armor Placement Design	LS	\$18,000	1	\$18,000
<i>Total Pre-Construction Activities</i>				<i>\$91,051,910</i>
B. Mobilization and Demobilization				
Dredge Equipment Mobilization/Demobilization	EA	\$237,000	3	\$711,000
Capping Equipment Mobilization/Demobilization	EA	\$237,000	3	\$711,000
Monitoring Equipment Mobilization/Demobilization	LS	\$13,800	1	\$13,800
Debris Removal Equipment Mobilization/Demobilization	EA	\$60,000	1	\$60,000
Shoreline Protection Equipment Mobilization/Demobilization	EA	\$237,000	1	\$237,000
New Season Restart	Year	\$480,000	5	\$2,160,000
<i>Total Mobilization and Demobilization</i>				<i>\$3,892,800</i>

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C. Testing and Monitoring During Dredging and Capping				
Bathymetric Survey	Year	\$635,200	6	\$3,493,600
Water Quality Monitoring	Year	\$1,195,860	6	\$6,577,230
Sediment Monitoring	Year	\$486,640	6	\$2,676,520
Biological Monitoring	Year	\$900,000	6	\$4,950,000
Air Monitoring	Year	\$120,000	6	\$660,000
Monitoring Reports (including Laboratory Reporting)	Year	\$355,000	6	\$1,952,500
<i>Total Testing and Monitoring During Dredging and Backfilling/Capping</i>				<i>\$20,309,850</i>
D. Dredging				
Mechanical Dredging	CY	\$25	3,541,588	\$88,539,700
Large Debris Removal, Off-loading, Transport, and Disposal	Ton	\$200	6,000	\$1,200,000
Sediment Screening for Bypass Pumping	CY	\$9	650,000	\$5,850,000
Bypass Pumping (RM6.1 to RM5.7)	CY	\$12	1,190,000	\$14,280,000
Offloading and Transport	CY	\$15	650,000	\$9,750,000
Barge Transport of Dredged Material	CY	\$10	5,494,000	\$54,940,000
Shallow Water Sediments - Double Handling	CY	\$5	203,500	\$1,017,500
Hydraulic Off-loading of Dredged Material	CY	\$10	5,494,000	\$54,940,000
Controls for Quality of Life Impacts	Percentage	1%		\$4,780,000
<i>Total Dredging</i>				<i>\$235,297,200</i>
E. Backfill and/or Engineered Cap				
Backfill/Engineered Cap Material Purchase and Delivery	CY	\$30	2,723,000	\$81,690,000
Backfill Material Placement	CY	\$20	141,000	\$2,820,000
Engineered Cap Material Placement	CY	\$30	2,582,000	\$77,460,000
Armor Material Purchase and Delivery	CY	\$30	192,000	\$5,760,000
Armor Material Placement	CY	\$30	192,000	\$5,760,000
Confirmation Coring	Core	\$210	465	\$97,650
Sediment Recontamination Monitoring	Sample	\$1,560	1,395	\$2,176,200
Mudflat Engineered Cap	CY	\$80	203,500	\$16,280,000
Mudflat Reconstruction	CY	\$150	203,500	\$30,525,000
Riprapped Shoreline Repairs and Replacement	SY	\$75	5,000	\$375,000
<i>Total Backfill and/or Engineered Cap</i>				<i>\$222,943,850</i>
Subtotal Capital Costs				\$573,495,610
Construction and Program Management	Percentage	10%	482,443,700	\$48,240,000
Scope and Bid Contingency	Percentage	25%	573,495,610	\$143,370,000
TOTAL CAPITAL COSTS				\$765,105,610

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DREDGED MATERIAL MANAGEMENT CAPITAL COSTS				
F2. Pre-Construction Activities for DMM				
Design	Percentage	6%		\$52,400,000
Regulatory Requirements, Legal, and Community Outreach	Percentage	2%		\$17,470,000
Land Acquisition	Acre	\$510,000	32	\$16,065,000
Contractor Work Plans and Submittals	LS	\$119,000	1	\$119,000
Pre-Construction Oversight	Month	\$48,000	3	\$144,000
Upland Sediment Processing Facility Site Investigation - Geotechnical	Boring	\$3,220	63	\$202,860
Upland Sediment Processing Facility Site Investigation - Chemical	Core	\$2,560	32	\$80,640
Topographic Survey - Upland Sediment Processing Facility Site	Acre	\$870	34.5	\$30,015
Habitat Survey (upland sediment processing facility site)	LS	\$42,000	1	\$42,000
Cultural Survey (upland sediment processing facility site)	LS	\$42,000	1	\$42,000
Miscellaneous Tests for DMM Design	LS	\$106,130	1	\$106,130
<i>Total Pre-Construction Activities for DMM</i>				<i>\$86,701,645</i>
G2. Upland Sediment Processing Facility				
Mobilization and Demobilization	Percentage	10%		\$5,930,000
Mechanical and Electrical	Percentage	10%		\$5,930,000
Layout and Documentation Surveys	Day	\$4,000	104	\$416,000
Fencing	LF	\$60	9,400	\$564,000
Exterior Lighting	Acre	\$50,000	32	\$1,600,000
Security	LS	\$100,000	1	\$100,000
Buildings	LS	\$25,340,000	1	\$25,340,000
Utilities	LS	\$1,250,000	1	\$1,250,000
Earthwork	CY	\$12	169,000	\$2,028,000
Stormwater Management	LS	\$154,000	1	\$154,000
Paving	SY	\$30	105,000	\$3,150,000
Pier/Dock Structure	SF	\$160	50,000	\$8,000,000
Prefabricated Building (Sprung Structure) for Dewatered Sediment Storage	SF	\$40	138,000	\$5,520,000
Storage Area - Concrete Slab and Push Walls	CY	\$600	6,000	\$3,600,000
Storage Area - Subgrade Material	CY	\$40	2,600	\$104,000
Storage Area - Filter Fabric	SY	\$2	15,400	\$30,800
Storage Area - Vapor Emissions Control	Unit	\$5,000	12	\$60,000
Piping	LF	\$30	33,600	\$1,008,000
Upfront Storage and Recycle Water Tanks	LS	\$707,000	1	\$707,000
Loadout Facility	LS	\$500,000	1	\$500,000

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Rail Line Spur/Railcar Storage	Mile	\$1,000,000	5	\$5,000,000
Temporary Bunkers for Loadout Facility	Unit	\$10,000	2	\$20,000
Hazardous Material Storage Area	LS	\$93,000	1	\$93,000
Air Monitoring During Construction	Month	\$5,000	12	\$60,000
<i>Total Upland Sediment Processing Facility</i>				<i>\$71,164,800</i>
H2. Equipment Costs				
Operating Equipment	LS	\$1,067,000	1	\$1,067,000
Wastewater Treatment Plant	LS	\$6,701,000	1	\$6,701,000
<i>Total Equipment Costs</i>				<i>\$7,768,000</i>
I2. Processing and Disposal				
Mechanical Dewatering Using Filter Presses	CY	\$50	3,541,588	\$177,079,400
Dredged Material Testing for Disposal	5000 CY	\$1,088	440	\$478,720
Transport Off-site Thermal Treatment	Ton	\$240	100,000	\$24,000,000
Thermal Treatment and Disposal (Off-site Facility)	Ton	\$400	100,000	\$40,000,000
Transport to Subtitle C Landfill (Off-site Facility)	Ton	\$130	2,070,000	\$269,100,000
Off-site Disposal in Subtitle C Landfill	Ton	\$100	2,070,000	\$207,000,000
Decontamination and Disposal of Medium-sized Debris	Ton	\$200	231,000	\$46,200,000
Debris Transport and Disposal (Small Organic Fraction) in Subtitle C Landfill	Ton	\$230	20,000	\$4,600,000
Reclaimed Sand Processing, Transport, and Beneficial Use	Ton	\$50	500,000	\$25,000,000
<i>Total Processing and Disposal</i>				<i>\$793,458,120</i>
J2. Site Decommissioning/Restoration				
<i>Total Decommissioning/Restoration</i>	Acre	\$30,000	32	<i>\$945,000</i>
Subtotal Dredged Material Management Capital Costs				\$960,037,565
Construction and Program Management	Percentage	10%		\$87,330,000
Scope and Bid Contingency	Percentage	25%		\$240,010,000
TOTAL DREDGED MATERIAL MANAGEMENT CAPITAL COSTS				\$1,287,377,565

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DREDGED MATERIAL MANAGEMENT O&M COSTS				
K. DMM Site O&M				
Wastewater Treatment Plant O&M	Year	\$670,100	1	\$670,100
Sediment Processing Site O&M	Year	\$2,738,000	1	\$2,738,000
Operations Management/Coordination	Year	\$939,000	1	\$939,000
Wastewater Testing	Month	\$5,430	12	\$65,160
Air Monitoring	Month	\$5,000	12	\$60,000
Subtotal DMM Site O&M				\$4,472,260
Construction and Program Management	Percentage	10%		\$450,000
Scope and Bid Contingency	Percentage	25%		\$1,120,000
TOTAL DREDGED MATERIAL MANAGEMENT O&M COSTS				\$6,042,260
LONG-TERM O&M COSTS				
L. Annual Monitoring Activities				
Community Outreach	LS	\$95,000	1	\$95,000
Mobilization and Demobilization of Monitoring Equipment	EA	\$26,900	1	\$26,900
Bathymetric Survey	Day	\$8,200	9	\$73,800
Water Column Sampling and Analysis	Sample	\$1,000	37	\$37,000
Sediment Sampling and Analysis	Sample	\$830	1,826	\$1,515,580
Biological Monitoring	LS	\$1,400,000	1	\$1,400,000
Habitat Recolonization using SPI	Location	\$2,300	17	\$39,100
Annual Monitoring Reports	EA	\$105,000	1	\$105,000
<i>Total Annual Monitoring Activities</i>				<i>\$3,292,380</i>
M. Annual Maintenance Activities				
Mobilization and Demobilization of Cap Maintenance Equipment	EA	\$54,000	1	\$54,000
Ice Scour Evaluation of Cap along Shoreline	LS	\$21,000	1	\$21,000
Annual Cap Maintenance	CY	\$50	5,200	\$260,000
<i>Total Annual Maintenance Activities</i>				<i>\$335,000</i>
Subtotal Annual O&M				\$3,627,380
Construction and Program Management	Percentage	10%		\$360,000
Scope and Bid Contingency	Percentage	25%		\$910,000
TOTAL ANNUAL O&M				\$4,897,380

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N. Periodic Monitoring Activities				
Supplemental Biological Monitoring	Year	\$1,400,000	1	\$1,400,000
Supplemental Habitat Recolonization using SPI	Location	\$2,400	66	\$158,400
Performance Review Report	Year	\$365,000	1	\$365,000
<i>Total Periodical Monitoring Activities</i>				<i>\$1,923,400</i>
O. Periodic Maintenance Activities				
Periodic Cap Maintenance	CY	\$50	130,000	\$6,500,000
Natural Shoreline Maintenance	LF	\$200	2,300	\$460,000
<i>Total Periodic Maintenance Activities</i>				<i>\$6,960,000</i>
Subtotal Periodic O&M				\$8,883,400
Construction and Program Management	Percentage	10%		\$890,000
Scope and Bid Contingency	Percentage	25%		\$2,220,000
TOTAL PERIODIC O&M				\$11,993,400

Notes: CAD = Confined Aquatic Disposal; CY = Cubic Yard; DMM = Dredged Material Management; EA = Each; HARS = Historic Area Remediation Site; LF = Linear Feet; LS = Lump Sum; O&M = Operation and Maintenance; SPI = Sediment Profile Imaging; SF = Square Feet; SY = Square Yard.